

REMARKS/ARGUMENTS

Reconsideration of the present application, as amended, is respectfully requested.

In the specification, page 6 has been amended to correct a typographical error in the last paragraph of that page.

With respect to the claims, of pending claims 1-18, claims 1-12 were rejected and claims 13-18 were allowed. Specifically, claim 1 was rejected under 35 U.S.C. §102(b) for anticipation by Japanese Patent App. No. 05-249507, filed March 9, 1992, S. Koda inventor, and claims 1-5 were rejected under 35 U.S.C. §102(b) for anticipation by U.S. Patent No. 4,991,924, which issued February 12, 1991 to N.K. Shankar *et al.* Claims 1-5 have been canceled.

Claims 6-11 were rejected under 35 U.S.C. §102(b) for anticipation by the cited Shankar patent in view of U.S. Patent No. 5,742,712 which issued April 21, 1998 to J.J. Pan *et al.* In that rejection, the Examiner stated:

“Regarding claim 6, Shankar discloses an optical switch device comprising:

...

a cholesteric liquid crystal cell between said second end faces of said first and second GRIN lenses as proposed in claim 1(see above);

said elements arranged and oriented with respect to each other so that light from said first optical fiber passes through, and back from, said first collimating GRIN lens, and said cholesteric liquid crystal cell unit into said second optical fiber when said cholesteric liquid crystal cell units reflects light responsive to said control signal, and light from said first optical fiber passes through said first collimating GRIN lens, said cholesteric liquid crystal cell unit, and said second collimating GRIN lens into said third optical fiber when said cholesteric liquid

crystal cell units transmits light responsive to said control signal (Figure 7A Transmitted Beam Connection Mode, Transmitted Beam Bypass Mode).

Shankar fails to disclose first and second sleeves having a central longitudinal channel and an end face in which the optical fibers are fixed as proposed. Pan '712, however, teaches such a sleeve and channel construction in the disclosure of a 2x2 electromechanical switch (Figures 3A and 3B elements 26, 34, 50, and 52).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the switch disclosed by Shankar having a sleeve as taught by Pan '712 for the input and output fibers...."

With due respect to the Examiner, the applicants disagree with this rejection and make their arguments with respect to independent claim 6 upon which claims 7-12 depend. Claim 6 recites that a liquid crystal cell unit having two liquid crystal cells. The optical switch of Fig. 7A in the cited Shankar patent has only one cholesteric liquid crystal cell 354. See col. 7, lines 27-32.

Secondly, as amended, claim 6 reads, "...said first and second sleeves, said first and second GRIN lenses, said cholesteric liquid crystal cell unit arranged and oriented with respect to each other so that light from said first optical fiber passes through, and back from, said first collimating GRIN lens, and said cholesteric liquid crystal cell unit directly into said second optical fiber when said cholesteric liquid crystal cell unit reflects light responsive to said control signal, and light from said first optical fiber passes through said first collimating GRIN lens, said cholesteric liquid crystal cell unit, and said second collimating GRIN lens directly into said third optical fiber when said cholesteric liquid crystal cell units transmits light responsive to said control signal (emphasis added)." In contrast, the Shankar optical switch does not operate in this manner. Rather, light from the optical fiber 376 is reflected off the cholesteric liquid crystal cell 354, back to the reflective coating 384, then to the cholesteric liquid crystal cell 354 again, and finally back to the optical fiber 378 in the switch's by-pass mode. In the connection mode, light

from the optical fiber 376 is transmitted through the cholesteric liquid crystal cell 354, reflected back by the reflective coating 394, then reflected once again by the cholesteric liquid crystal cell 354 again to the optical fiber 388. See Fig. 7A, and col. 7, line 59 to col. 8, line 2.

Therefore, the optical switch of the cited Shankar does not teach the elements, nor the operation, as recited in amended claim 6. Independent claim 6 should be allowable. Furthermore, dependent claims 7-12 should be allowed for at least being dependent upon allowable subject matter. Claims 13-18 were considered allowable.

Additionally, the applicants note a typographical error in claim 10 and have amended it accordingly correcting it to indicate dependency upon claim 6.

Finally, the applicants submit two references, U.S. Patent Nos. 6,181,846 and 6,249,625 with the attached Form 1449. Both references disclose optical fibers fixed in sleeves.

Conclusion

Therefore, due to the amendments above and the remarks directed thereto, the applicants respectfully requested that the rejections be removed that claims 6-18 be allowed and the case be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned attorney at (408) 446-7687.

Respectfully submitted,



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